A.D. 1894. Feb. 28. N° 4251.

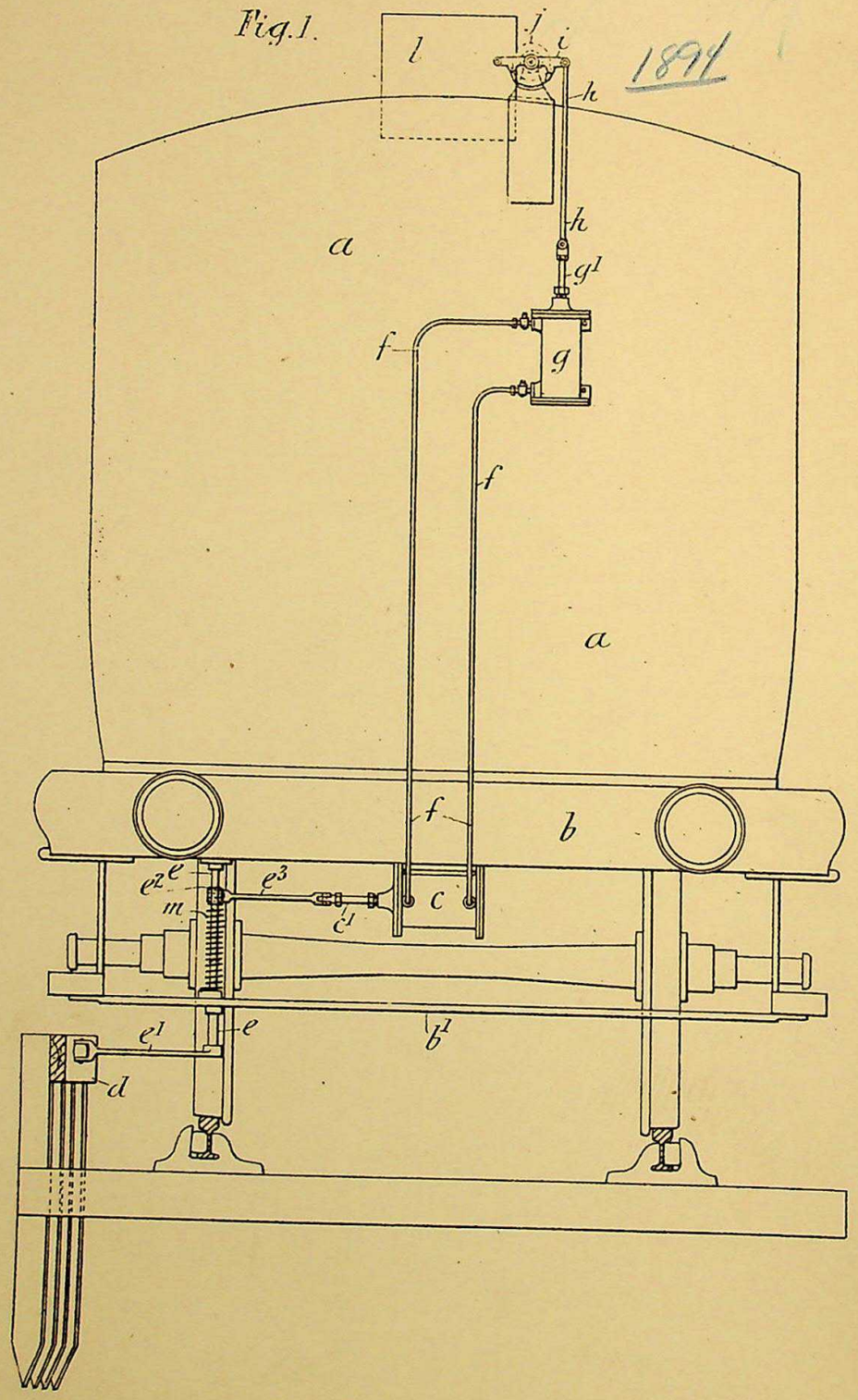
VERNON & *another's* Complete Specification.

4251

(3 SHEETS)

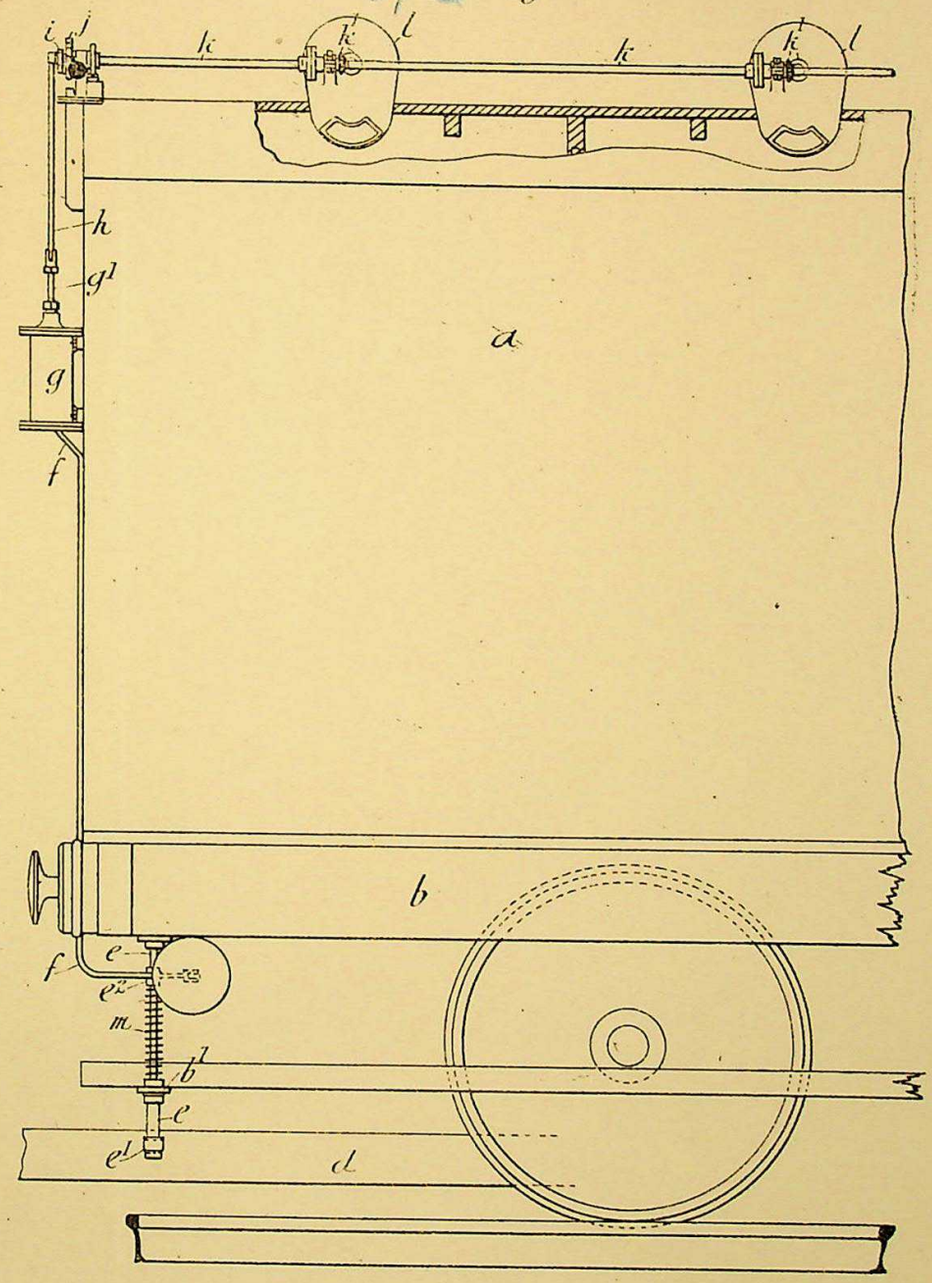
SHEET 1.

Fig. 1.



SHEET 2.

Fig. 2.



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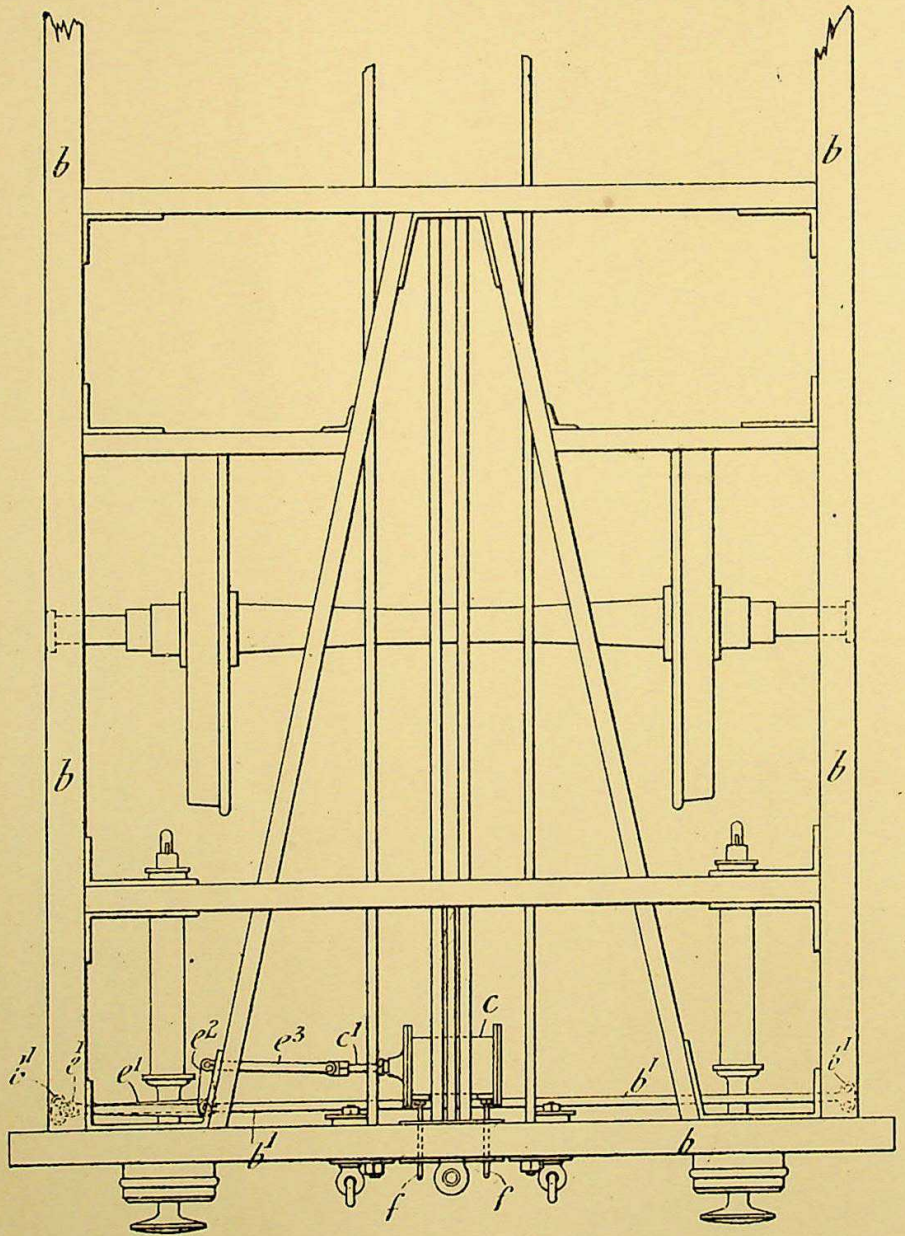
Malby & Sons, Photo-Litho

[illegible] SCALES.
Indicators.
Station.

Fig. 3.



[This Drawing is a reproduction of the Original on a reduced scale.]

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116. SIGNALS
Indicators
Station.

N° 4251 A.D. 1894

Date of Application, 28th Feb., 1894
Complete Specification Left, 24th Nov., 1894—Accepted, 29th Dec., 1894

PROVISIONAL SPECIFICATION.

Improvements in Station Indicator and Advertising Apparatus for Carriages Running on Rails.

We, CHARLES EDWARD VERNON, of Victoria Docks, in the County of Essex, Engineer, and WILLIAM SAMUEL PAGE, of 4 St. Helen's Place, in the City of London, Clerk, do hereby declare the nature of this invention to be as follows :—

The invention relates to a novel combination and arrangement of means for automatically working station indicating and advertising apparatus in carriages running on rails.

In carrying our invention into effect we make use of compressed air and vacuum either combined or separately.

Our improved apparatus is constructed and arranged as follows :—

An air cylinder is fixed to the under part of the carriage and its piston is worked by a convenient arrangement of levers and connecting rod or rods. The first motion is given by one of the levers coming into contact, in the motion of the carriage, with a cam or incline placed at the side of, or on or between, the line of rails. With the movement of the piston the air is compressed on the one side thereof and a partial vacuum is formed on the other. Small pipes connect the end of this cylinder to the ends of a second cylinder fixed in a suitable position at the end or on the roof of the carriage. The piston of the second cylinder is operated by the compressed air and vacuum created by the piston of the first cylinder, and has a corresponding movement to said first piston and gives the necessary and exact travel required to turn a double ratchet wheel in either direction, according to the direction in which the carriage is running. The said ratchet wheel gives rotary motion to a shaft which is common to and is geared with all the indicators in the carriage. Suitable means are provided to return the first motion lever and the pistons to their central position after each motion.

By the use of compressed air to operate the indicators, any sudden shock to the gearing is avoided when the carriage is travelling at a high speed.

The first or compression cylinder can be dispensed with when compressed air or vacuum can be obtained from the brake service or from a separate compressor or ejector on the engine, and in this case the second cylinders are coupled throughout the length of the train by two small services of pipes, and the indicator worked by a three-way valve in the guard's van (either by hand or automatically) in either direction, suitable means being provided to return the piston to a central position after each motion.

Dated this 28th day of February 1894.

CHARLES EDWARD VERNON,
WILLIAM SAMUEL PAGE,
By Harris & Mills,
23, Southampton Buildings, London, W.C., Agents.

[Price 8d.]

COMPLETE SPECIFICATION.

Improvements in Station Indicator and Advertising Apparatus for Carriages Running on Rails.

We, CHARLES EDWARD VERNON, of Victoria Docks, in the County of Essex, Engineer, and WILLIAM SAMUEL PAGE, of 4 St. Helen's Place, in the City of London, Clerk, do hereby declare the nature of this invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement :—

The invention relates more particularly to a novel combination and arrangement of means for automatically working station indicating and advertising apparatus in carriages running on rails.

In carrying our invention into effect we make use of compressed air and vacuum, either combined or separately.

Our improved apparatus is illustrated in the accompanying drawings, in which :—

Fig. 1 is an end view and Fig. 2 is a partial side view of a railway carriage fitted with our improvements, and Fig. 3 is a partial plan of the under carriage.

a is the body of the carriage and *b* is the under carriage. *c* is an air cylinder fixed to the under carriage, the piston of which is worked in the following manner.

d is an incline fixed at the side of the permanent way ; e^1 is a lever fixed to the lower end of an upright shaft *e* mounted in bearings carried by the under framing *b* and by the cross bar b^1 ; on the upper part of such shaft *e* is fixed a lever e^2, which, by a connecting rod e^3 and piston rod c^1, is connected with the piston of the cylinder *c*. Thus, as the lever e^1, in the running of the carriage, comes into contact with the incline *d*, it receives motion and, through the shaft *e*, lever e^2, connecting rod e^3 and piston rod c^1, gives motion to the piston of the cylinder *c*.

The cylinder *c* is connected at its ends, by pipes *f f*, with the corresponding ends of a cylinder *g* fixed on the end of the carriage body *a*. The piston of this cylinder *g* is, by the piston rod g^1 and connecting rod *h*, connected with a double ratchet lever *i* giving partial rotary motion to a double acting ratchet wheel *j* and consequently to a shaft *k*, which is common to, and is geared by bevel pinions k^1 with, all the indicators *l* in the carriage.

The lever e^1, and consequently the pistons of the cylinders *c* and *g*, are kept normally in their central positions and are returned to such positions after each motion, by a spring *m* around the shaft *e*, which is connected at one end to such shaft and at the other end to a suitable fixture. Other suitable means may however be employed for retaining such parts in, and returning them to, their normally central position.

The indicators represented in the drawings are of a similar character to those shown and described in the Specifications of Patents, Nos. 11170 of the year 1890 and 13166 of the year 1893, and the ratchet gear longitudinal shaft on carriage top and bevel gear herein referred to, are of similar character to those described in the latter mentioned Specification, but other suitable construction of indicator and driving gear may be employed.

By the arrangement of parts hereinbefore described, on the lever e^1 being moved by an incline *d*, the piston of the cylinder *c* will be moved, thereby compressing the air in such cylinder on one side of the piston and producing a partial vacuum on the other side of such piston ; the piston of the cylinder *g* is operated by the compressed air and vacuum created by the piston of the cylinder *c* and receives a corresponding movement to such first piston and gives the necessary and exact travel required to turn the double ratchet wheel *j* and consequently the

indicators in either direction according to the direction in which the carriage is travelling.

As a modification, the first or compression cylinder *c* can be dispensed with, when compressed air or vacuum can be obtained from the brake service or from a separate compressor or ejector on the engine, and in this case the second cylinders *g* are coupled throughout the length of the train by two small services of pipes and the indicators worked by a three-way valve in the guard's van (either by hand or automatically) in either direction, suitable means being provided to return the pistons to a central position after each motion. We have not thought it necessary to give drawings of the above modification, as such will be readily understood from the foregoing description.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed we declare that what we claim is :—

1. The novel combination and arrangement of apparatus for communicating motion to station indicator and advertising apparatus for carriages running on rails substantially as herein shown and described.

2. The combination with a stationary cam or incline and a lever on the carriage acted upon by said cam or incline, of a piston working in a cylinder and operated by such lever to produce compressed air on one side and a partial vacuum on the other side of said piston, a second cylinder connected at its ends by pipes to the first cylinder, and a piston in said second cylinder connected with and operating the indicator driving gear, substantially as herein shown and described.

3. The combination with station indicator and advertising apparatus, of a piston and cylinder for giving motion to the same, said piston being normally kept in and returned to the central position in said cylinder and receiving motion in either direction from a suitable source of pressure or vacuum placed in communication with said cylinder either manually or automatically, substantially as herein shown and described.

Dated this 24th day of November 1894.

C. E. VERNON,
W. S. PAGE,

By Harris & Mills,
23, Southampton Buildings, London, W.C., Agents.

London : Printed for Her Majesty's Stationery Office, by Darling & Son, Ltd.—1895